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Indian Standard

GENERAL REQUIREMENTS FOR OTTER BOARDS

PART I FLAT RECTANGULAR OTTER BOARDS

(Incorporating Amendment No. 1)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Group 2

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Indian Standard

GENERAL REQUIREMENTS FOR OTTER BOARDS

PART I FLAT RECTANGULAR OTTER BOARDS

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Indian Standard
GENERAL REQUIREMENTS FOR OTTER BOARDS

PART I FLAT RECTANGULAR OTTER BOARDS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 5 April 1975, after the draft finalized by the Fishing Vessels Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 Otter board is the most important functional device of an otter trawl net. The boards are used in pairs, and are attached to the trawl net in such a way as to remain obliquely to the direction of motion so that the water pressure against the board, forces them to shear outwards, thus spreading the mouth of the net horizontally.

0.3 The size and weight of the otter board should conform with the size and power of the vessel as well as the type and size of the trawl gear used.

0.4 Otter boards of different shapes, namely, flat rectangular, rectangular horizontally curved, rectangular vertically curved, L-shaped, oval and V-form, are in use. But flat rectangular boards are the most common due to their case of construction.

0.5 This standard is Part I of a series of Indian Standards on otter boards and other parts in this series will cover various other types of otter boards.

0.6 This edition 1.1 incorporates Amendment No. 1 (July 1977). Side bar indicates modification of the text as the result of incorporation of the amendment.

1. SCOPE

1.1 This standard deals with the materials and general design requirements of flat rectangular otter boards for otter trawl.

2. TERMINOLOGY

2.0 For the purpose of this standard, the terms given below and shown in Fig. 1 shall apply.

2.1 Otter Boards — Boards made of planks and steel plates used for keeping open the mouth of the trawl net horizontaly. They are used in pairs and constructed as one 'right' board and the other 'left' board. They are also known as 'shear boards', 'trawl boards', 'otter boards', or simply 'doors'.

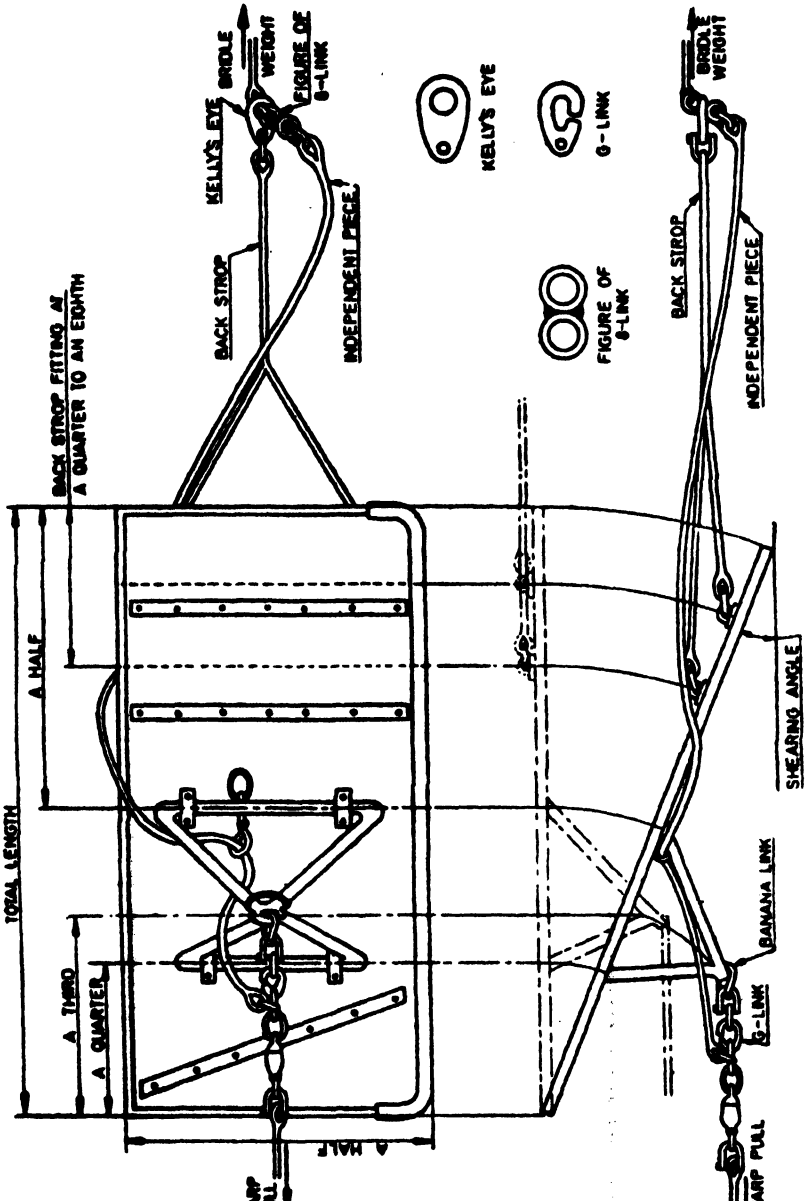

FIG. 1 AN OTTER BOARD

2.2 Back Strop — A bridle made of flexible wire rope, manila rope or synthetic rope attached to the rings, called norman lashings, on the outer side of the otter board for connecting to the sweep wire.

2.3 Banana Link — A metal link fitted to the apex of the brackets of an otter board to prevent the G-Link assembly from being fouled.

2.4 Brackets — A pair of triangular brackets, a pair of chain bridles, or a pair with one bracket and one chain bridle, fitted on the inner side of the otter board, for the attachment of the towing warp. The height of the forward bracket is always shorter than the rear one, so as to keep the board in an oblique position while towing.

2.5 Bridle — Name given to the four short chains or iron bars that hold the otter board at the proper angle, or the short pair of lines (legs) attaching the board to the wing of the trawl, or the short lines that hold the spreader in position.

2.6 G-Link Assembly — An arrangement of metallic links with a G-shaped link for attaching and detaching the towing warps to otter board.

2.7 Figure of 8-Link — A link in the shape of 8 with one hole bigger than the other attached to the independent piece. This link facilitates the connection and disconnection of the otter board from the sweep wire through kelly's eye. It is also known as 'stop link'.

2.8 Kelly's Eye — A shackling device fitted to the back strop of an otter board for engaging and disengaging the sweep line. It is also called the V. D. ring.

2.9 Independent Piece — A length of wire between the towing rope and the bridle to facilitate disconnecting of the otter board (*see* Fig. 1). Also called pendent.

2.10 Towing Rope — Strong manila rope used during hand operation or strong wire rope used during winch operation of the trawl net to drag the net.

2.11 Shear Angle — It is the angle between the plane of otter board and the direction of the flow of water. It is also known as angle of attack.

3. MATERIALS

3.1

Name of Part	*Material Conforming to*
Otter board	IS : 399-1963[*]
Bracket	IS : 2073-1970[†]
Back strop	IS : 5537-1970[‡] or IS : 2266-1970[§]
G-Link	IS : 2073-1970[†]
Kelly's eye	IS : 2073-1970[†]
Figure of 8-link	IS : 2073-1970[†]
Sole (shoe)	IS : 5986-1970[‖]
Fittings	IS : 5986-1970[‖]
Chain bridle	IS : 5537-1970[‡]
Towing rope	IS : 1084-1969[¶] or IS : 2266-1970[§]

4. CONSTRUCTION

4.1 The constructional details of otter board complete with fittings are shown in Fig. 2. The timber planks shall be divided with tie bars and norman bolts and lashings shall be strengthened with strap plates or similar protection pieces such as back channels. The whole rig shall be strengthened with iron frames and be protected at the lower edge with a heavy hard wearing metal sole.

4.2 For protection against corrosion, all metal parts shall be painted with a paint conforming to IS : 1404-1970[**].

5. DIMENSIONS

5.1 The length and width of an otter board shall preferably be in a ratio of 2 : 1. Higher ratios may also be adopted.

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[*] Classification of commercial timbers and their zonal distribution (*revised*).

[†] Specification for carbon steel black bars for production of machined parts for general engineering purposes (*first revision*).

[‡] Specification for lashing chains.

[§] Specification for steel wire ropes for general engineering purposes (*first revision*).

[‖] Specification for hot-rolled steel plates and flats for cold-forming and flanging operations.

[¶] Specification for Manila ropes (*Second revision*).

[**] Specification for anti-corrosive paint, brushing, for ships' bottoms and hulls, red, chocolate or black, as required (*first revision*).

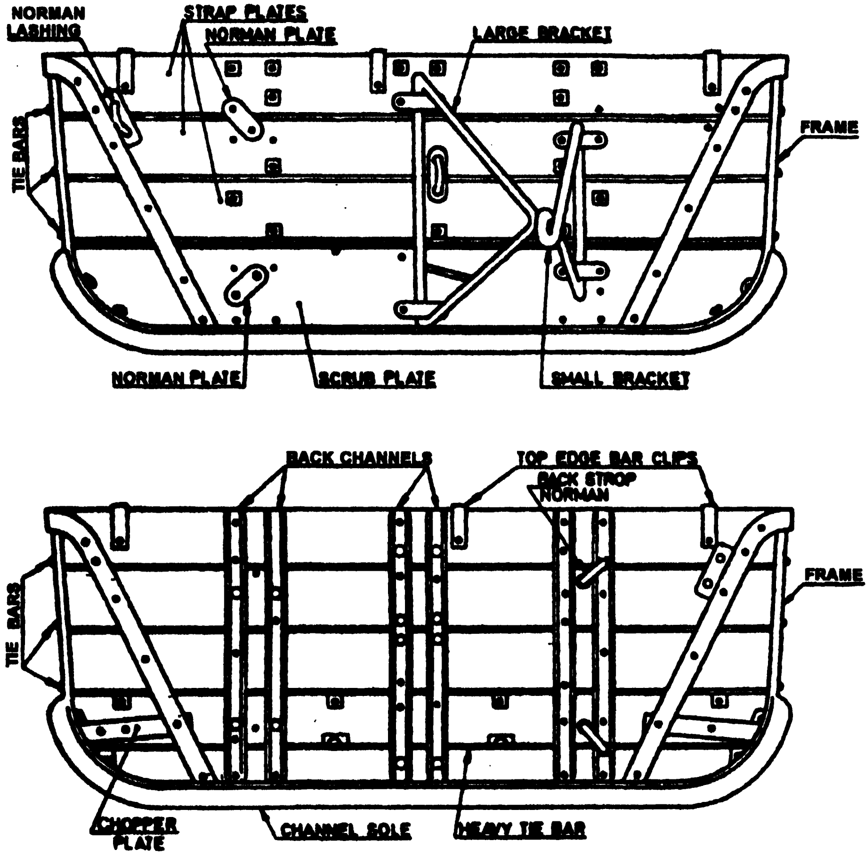

FIG. 2 PARTS OF AN OTTER BOARD

5.2 Brackets

5.2.1 *For Boards with Adjustable Chain Bridles*

a) When the forward bridle is set at a distance of 20 percent of the total length of the board from the leading edge and the rear bridle at 30 percent from the rear edge, perpendicular height of fore bridle is set at 25 to 30 percent and the rear bridle at 50 percent of the total length.

b) When both the fore and rear bridles are fitted at 25 percent of the length of the board respectively from the fore and rear ends, the prependicular height of the fore bridle is 25 percent and that of the rear bridle is 50 percent of the total length of the board.

5.2.2 *For Boards with Fixed Iron Brackets* — When the fore bracket and the rear bracket are positioned respectively at 25 percent and 50 percent of the length of the board from the fore end, the perpendicular height of the fore bracket will be 20 percent and that of the rear bracket will be 25 percent of the total length of the board.

5.3 The brackets should be positioned at the symmetry axis (by weight) of the board and their apex should fall approximately at one third of its length from the fore edge.

5.4 The fittings for the norman rings on the outer side of the board for connecting the back strop shall be approximately at one quarter the length of the board from the rear. The position may vary to one eighth of the length or to the very edge of the rear end.

5.5 The length of the back strop, bridle and warp cable shall be as agreed to between the manufacturer and the purchaser.

5.6 A shear angle between 20° and 45° is considered of practical importance. For the flat rectangular otter boards the shear angle ranging from 30° to 39° is considered as most suitable.

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